

Best Practices

1. Knowing that children are naturally inquisitive, and that all learning does not take place within the classroom, the "Green Team" teachers at our school envisioned our school grounds as an innovative outdoor learning laboratory. With this dream in mind, our outdoor environmental teaching site was born. Utilizing the environment as a tool for teaching hands-on science encourages children to question, problem solve, and work cooperatively in a non-threatening atmosphere. This creative school-wide community based project provides daily on-site opportunities for spontaneous inquire-based learning.

Through this collaborative effort, our Green Team teachers provide inter-disciplinary and multi-sensory experiences while preserving the natural habitat surrounding our school. Our project area contains a composite of various curriculum related teaching stations and activity centers that revolve around our focus which is an outdoor environmental laboratory. The activity areas include a composting center, 16 wooden raised bed gardens, old tire herb gardens using 40 recycled tires, two mini-tree farms, a nature trail, geological study area, a hummingbird/butterfly garden, an outdoor teaching area (picnic table seating), and a habitat for native animal species and migrating birds. Supporting our outdoor program are additional classroom grow labs and hydroponic activities (previously obtained through various grant funding), on-line communication projects with other schools, workshops with environmental consultants, community involvement with municipal agencies, local businesses, parents and high school students.

In an outside area adjacent to our building, we have developed a multi-faceted environmental education activity center using only donated materials, grants and fund raiser profits. This project has been of no additional expense to our Board of Education. In a partially enclosed fenced area are the raised bed planting areas of various sizes where classes are developing gardening activities and experiments. Also within this area is a composting section where classes experiment with different composting systems. Compost made in this area is put to use in the raised beds. Adjacent to this planting area is a three season nature trail which has been cleared and paved by the students with donated wood chips. This trail has markers to denote plant identification and specific points of interest for classes to observe. A seasonal guide is being developed for teachers to follow. In this manner a class may visit the trail a number of times over the course of a year and be able to view and experience different aspects upon each visit, depending upon the season. A geologic study area is also planned for an outcropping of rock and stone within the boundary of the nature trail. The entire area is a fine example of much of our local terrain.

A bird habitat is under construction to enhance the viewing of our native and migrating species. Specific plants and houses have been placed in this area to attract birds and encourage nesting. Along with this a wildflower garden area has been planted to attract butterflies, insects and native animal species. Lastly, a necessary outdoor teaching site has been built using picnic style tables where teachers may conduct more structured introductory and follow-up lessons. The numerous multi-faceted activity areas enable many of our teachers to participate with their classes in a choice of activities developing a sense of ownership with their students, thus expanding their classrooms to the outdoors.

To support our outside activities, a number of outdoor projects are going on in our classrooms. Grow Labs have been purchased with grant funding and are utilized by many of the classes "adopting" a raised bed area. They enable our classes to begin seedlings prior to planting season and observe plant growth and total development. Additional hydroponic gardens systems are used as an innovative form of plant propagation to be transplanted to our garden area. Vermi-composting bins have been sustained by some classes, as well. The worms raised have been added to our beds to improve soil conditions.

Community volunteers have been involved in the building of our raised beds with donated railroad ties, the assembling of bird houses and nesting shelves and the summer maintenance program. A peer-monitoring program has been utilized and is planned to continue with high school students coming to our building to work with our elementary children on environmental activities and area development. On-line telecommunications and computer technology continue to be used to interact with other schools involved in environmental education.

This successful project can be duplicated by any school where limited property is available, community support is solicited and grant funding is sought. We have found people and agencies eager to help with materials and labor. All may be waiting only for the asking.

Best Practices

2. Our school houses 455 heterogeneously group 4th and 5th graders in 22 classes, of which 24% receive special education services and 12 % are in our Academic Skills Improvement Program . The diverse population and specific needs of our students necessitates the implementation of various methods and materials to achieve success. We see our surrounding property as an extension of the classroom. Many of our students have not realized success within the walls of the traditional learning setting. Allowing our children to explore and easily interact with their environment promotes ownership and makes a positive difference that will greatly enhance their learning experience.

With our focus on meeting the educational needs as a primary goal, we see that our project does so in the following ways:

- This project has increased pride , self-esteem responsibility and confidence in our students.
- It has promoted the understanding of the interaction that takes place in outdoor and indoor ecosystems.
- Our activities have enhanced the students' knowledge of their place in our ecological structure.
- Experiments have provided opportunities to develop a variety of scientific skills (e.g. inference, prediction, problem solving, observation) while involving our students in hands-on experience.
- Our student body is developing an attitude of environmental stewardship.
- Student management and communication skills have been given an avenue for expansion.
- Special education students are provided with innovative mainstreaming opportunities with our regular student population.
- We are encouraging learning in a non-threatening atmosphere.
- Students are involved in cross-curricula instruction/lessons.
- A link has been created between our school and community.
- We are fostering cooperative learning and sharing among students of various academic and social levels
- Our staff has been provided with development in environmental issues and teaching activities relative to our project.

The Core Curriculum Content Standards addressed by our project include:

- 5.1 All students will learn to identify systems of interacting components and understand how their interactions combine to produce the overall behavior of the system.
- 5.2 All students will develop problem solving, decision making and inquiry skill, reflected by formulating usable questions and hypotheses, planning experiments, conducting systematic observations, interpreting and analyzing data, drawing conclusions, and communicating skills
- 5.3 All students will develop an understanding of how people of various cultures have contributed to the advancement of science and technology, and how major discoveries and events have advanced science and technology.
- 5.4 All students will develop an understanding of technology as an application of scientific principles.
- 5.5 All students will integrate mathematics as a tool for problem-solving in science and as a means of expressing and/or modeling scientific theories.
- 5.6 All students will gain an understanding of the structure, characteristics and basic needs of organisms.
- 5.7 All students will investigate the diversity of life.
- 5.12 All students will develop an understanding of the environment as a system of interdependent components affected by human activity and natural phenomena.

Best Practice

3. A number of evaluation techniques have been used and continue to be used to measure the success and progress of our project. Formal and informal methods are in operation. Subjective and objective testing materials have been developed.

This type of project lends itself to a variety of evaluations. Some examples of the types of techniques in use are as follows:

- Pre and post testing of students using the three season nature trail to measure observation and identification skills and content information.
- Actual success in planting activities is an observable measurement of proper plant propagation and care.
- There has been an increase in the animal population as a result of habitat development. Sights and physical evidence of deer, raccoons and snakes have been identified more frequently.
- The recording of bird counts has increased as a result of providing proper feeding stations and plants providing a natural source of food to native and migrating species.
- Nesting boxes and shelves have been observed as being used during nesting season.
- Inter-class project exchange sessions for the purpose of having students share success and setbacks have been used as a means of promoting students to learn from each others' work.
- Class logs, diaries and journals gathering data collected throughout many of the projects have been a source of comparative study and note taking skill practice.
- Tests on curriculum based tests in relation to project activities have been and continue to be compared to evaluate activity relativity and value.
- Scores on state given curriculum test for the fourth grade provide an additional source of measurement and information for possible changes in grade level activities.
- Reevaluation of activity purpose and goals is conducted in an on-going method. This allows each teacher to redesign and restructure experiments and projects for each year's class of student's.